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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/714,647

11/18/2003

Chih-Yuan Tseng

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4586 7590 04/19/2007

ROSENBERG, KLEIN & LEE

3458 ELLICOTT CENTER DRIVE-SUITE 101

ELLICOTT CITY, MD 21043

EXAMINER

VATHYAM, SUREKHA

ART UNIT

PAPER NUMBER

1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/19/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/714,647

Applicant(s)

TSENG, CHIH-YUAN

Examiner

Surekha Vathyam

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1 – 11 and 15 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarrine et al. (US 6,068,753) in view of Papp (US 5,120,419).

Regarding claim 1, Sarrine ('753) discloses an automatic inspection and imaging electrophoresis device (column 4, lines 14 – 30) comprising: a main housing (see figs. 1A and 1B) with a tray receiving opening (210) having at least two conductors (211, 212, 215) in the tray receiving opening; an electrophoresis tray (220) for holding a sample, the electrophoresis tray having at least two electrodes (213, 214, 216) situated so as to contact the at least two conductors when the electrophoresis tray is inserted into the tray receiving opening (column 8, lines 33 – 40); a scanner (500, 100) in the main housing for obtaining an image of the sample in the electrophoresis tray; a control

device (110, 112) for controlling the operation of the electrophoresis device, and a power supply (120) for providing electricity to the electrophoresis device.

Sarrine ('753) does not expressly disclose a sensor. However, Sarrine ('753) discloses the scanner (500) permits scanning and detection throughout the X and Y directions (column 6, lines 4 – 7) and the electrophoresis tray can move in the X direction (column 7, lines 8 – 12) and the device has encoders that can pulse light to precisely track location (column 6, line 66 – column 7, line 1) which would suggest to one of ordinary skill that the device of Sarrine ('753) is capable of detecting movement of the sample in the electrophoresis tray.

Papp ('419) teaches an electrophoresis device with a sensor (see fig. 1 and column 3, lines 4 – 18) in the main housing for detecting movement of a sample in an electrophoresis tray (column 2, lines 18 – 29).

It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) to include the sensor taught by Papp ('419) because it provides an efficient means to accurately determine the progress of the electrophoretic separation and also permits automated control of electrophoresis upon sufficient progress as explained by Papp ('419).

Regarding claim 2, Sarrine ('753) discloses the device further comprising a storage device (110) for storing data (see fig. 1A and column 7, lines 31 – 34).

Regarding claim 3, Sarrine ('753) discloses the device wherein the power supply (120) is located inside the main housing (see figs. 1A and 1B).

Regarding claim 4, Sarrine ('753) discloses the device wherein the power supply (120) is located inside the main housing (see figs. 1A and 1B). It would have been obvious to one of ordinary skill in the art to locate the power supply external to the main housing because rearrangement of the power supply would not have modified the operation of the device. See *In re Japikse*, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) and *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

Regarding claim 5, Sarrine ('753) discloses the device further comprising a light source (195) in the main housing (see figs. 4 and 5A).

Regarding claim 6, Sarrine ('753) discloses the device wherein the light source is an ultraviolet light or a visible light (column 8, lines 10 – 11).

Regarding claim 7, Sarrine ('753) discloses the device wherein the electrophoresis tray comprises a MYLAR backing on which gel is applied (column 7, lines 15 – 17).

Sarrine ('753) does not explicitly disclose the MYLAR to be transparent.

Papp ('419) teaches a device wherein the electrophoresis tray is transparent (column 1, lines 33 37).

It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) such that the MYLAR electrophoresis tray is transparent as taught by Papp ('419) because it permits the molecular markers to be seen or visualized (column 1, lines 35 – 37).

Regarding claim 8, Sarrine ('753) discloses the device wherein the scanner (500) is above the electrophoresis tray (column 7, lines 63 – 67) and the light source (195)

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extends in the Y direction (column 8, lines 10 – 12) (see figs. 4 and 5A) and the electrophoresis tray extends in the XY plane (column 7, lines 8 – 12). Papp ('419) teaches the sensor is below the electrophoresis tray while the light source is above the electrophoresis tray (column 3, lines 4 – 13). It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) to have the scanner and the light source be on either side of the electrophoresis tray as taught by Papp ('419) because it permits the detection of the obstruction of light passing through the tray and hence indicates the presence of the sample or dye-front as explained by Papp ('419).

Regarding claim 9, Papp ('419) teaches the sensor comprises a photocell (column 2, lines 6 – 12) but does not explicitly teach the sensor comprising a photodiode or charge-coupled device. Sarrine ('753) discloses an array of optical detection devices including photodiodes for use in electrophoresis, which would have suggested their use in the sensor of Papp ('419) to one of ordinary skill.

Regarding claim 10, Sarrine ('753) discloses the device further comprising: an input interface (150) for inputting operation data; and a display (140) for displaying status of components of the electrophoresis device.

Regarding claim 11, Sarrine ('753) discloses the device wherein the control device comprises an external computer (110) (see fig. 1A).

Regarding claim 15, Sarrine ('753) discloses the device further comprising an interface port (112) for connecting an external device (320) to the electrophoresis device (see fig. 3 and column 7, lines 43 – 53).

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Regarding claim 16, Sarrine ('753) discloses an automatic inspection and imaging electrophoresis device (column 4, lines 14 – 30) comprising: a main housing (see figs. 1A and 1B) with a tray receiving opening (210) having at least two conductors (211, 212, 215) in the tray receiving opening; an electrophoresis tray (220) for holding a sample, the electrophoresis tray having at least two electrodes (213, 214, 216) situated so as to contact the at least two conductors when the electrophoresis tray is inserted into the tray receiving opening (column 8, lines 33 – 40); a scanner (500, 100) in the main housing for obtaining an image of the sample in the electrophoresis tray; a control device (110, 112) for controlling the operation of the electrophoresis device; the control device comprising: a keypad (150) for inputting operation data; and a display (140) for displaying status of components of the electrophoresis device; a power supply (120) for providing electricity to the electrophoresis device; a storage device (110) for storing data (see fig. 1A and column 7, lines 31 – 34); a light source (195) for supplying light; and an interface port (112) for connecting an external device (320) to the electrophoresis device (see fig. 3 and column 7, lines 43 – 53).

Sarrine ('753) discloses the scanner (500) permits scanning and detection throughout the X and Y directions (column 6, lines 4 – 7) and the electrophoresis tray can move in the X direction (column 7, lines 8 – 12) and the device has encoders that can pulse light to precisely track location (column 6, line 66 – column 7, line 1) which would suggest to one of ordinary skill that the device of Sarrine ('753) is capable of detecting movement of the sample in the electrophoresis tray.

Papp ('419) teaches an electrophoresis device with a sensor (see fig. 1 and column 3, lines 4 – 18) in the main housing for detecting movement of a sample in an electrophoresis tray (column 2, lines 18 – 29).

It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) to include the sensor taught by Papp ('419) because it provides an efficient means to accurately determine the progress of the electrophoretic separation and also permits automated control of electrophoresis upon sufficient progress as explained by Papp ('419).

Regarding claim 17, Sarrine ('753) discloses the device wherein the light source comprises an ultraviolet light or a visible light (column 8, lines 10 – 11).

Regarding claim 18, Sarrine ('753) discloses the device wherein the electrophoresis tray comprises a MYLAR backing on which gel is applied (column 7, lines 15 – 17).

Sarrine ('753) does not explicitly disclose the MYLAR to be transparent.

Papp ('419) teaches a device wherein the electrophoresis tray is transparent (column 1, lines 33 37).

It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) such that the MYLAR electrophoresis tray is transparent as taught by Papp ('419) because it permits the molecular markers to be seen or visualized (column 1, lines 35 – 37).



Regarding claim 19, Sarrine ('753) discloses the device wherein the scanner (500) is above the electrophoresis tray (column 7, lines 63 – 67) and the light source (195) extends in the Y direction (column 8, lines 10 – 12) (see figs. 4 and 5A) and the electrophoresis tray extends in the XY plane (column 7, lines 8 – 12). Papp ('419) teaches the sensor is below the electrophoresis tray while the light source is above the electrophoresis tray (column 3, lines 4 – 13). It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) to have the scanner and the light source be on either side of the electrophoresis tray as taught by Papp ('419) because it permits the detection of the obstruction of light passing through the tray and hence indicates the presence of the sample or dye-front as explained by Papp ('419).

Regarding claim 20, Papp ('419) teaches the sensor comprises a photocell (column 2, lines 6 – 12) but does not explicitly teach the sensor comprising a photodiode or charge-coupled device. Sarrine ('753) discloses an array of optical detection devices including photodiodes for use in electrophoresis, which would have suggested their use in the sensor of Papp ('419) to one of ordinary skill.

4. Claim 14 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarrine et al. (US 6,068,753) in view of Papp (US 5,120,419) as applied to claims 1 and 16 above, and further in view of Amirkhanian et al. (US 2003/0116436).

Regarding claim 14, Sarrine ('753) in view of Papp ('419) discloses the device of claims 1 and 16 comprise a control device (110, 112) wherein the control device directs

the operation of the device and has data input, output and storage capability (column 7, lines 29 – 53) including a computer interface (column 4, lines 15 – 21).

Sarrine ('753) in view of Papp ('419) does not explicitly disclose the control device comprising a notebook computer.

Amirkhanian ('436) teaches an electrophoresis device with a control device (301) that includes a micro-computer system such as a PC or notebook computer ([0063]).

It would have been obvious to one of ordinary skill in the art to modify the device of Sarrine ('753) to include a notebook computer in the control device as taught by Amirkhanian ('436) because it helps achieve the control of optical detection functions of the electrophoresis device as explained by Amirkhanian ('436) ([0063]).

5. Claims 12 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sarrine et al. (US 6,068,753) in view of Papp (US 5,120,419) as applied to claims 1 and 16 above, and further in view of Cooper (US 2002/0123325).

Regarding claims 12 – 13, Sarrine ('753) in view of Papp ('419) discloses the device of claims 1 and 16 comprises a control device (110, 112) wherein the control device directs the operation of the device and has data input, output and storage capability (column 7, lines 29 – 53) including a computer interface (column 4, lines 15 – 21).

Sarrine ('753) in view of Papp ('419) does not explicitly disclose the control device comprising a portable electronic device (claim 12) such as a personal digital assistant (PDA) (claim 13).

Cooper ('325) teaches user interfaces of a wide variety such as PDA, notebook computers and desktop and mobile telephone terminals ([0017]).

It would have been obvious to one of ordinary skill in the art to modify the control device of Sarrine ('753) in view of Papp ('419) to include PDA because Cooper ('325) explains that a PDA can be used as an alternative to other control devices and provides enhanced security ([0017]).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Middendorf et al. (US 5,207,880) discloses an automatic inspection and imaging electrophoresis device similar in scope to the applicant.

Gregor et al. (US 5,811,665) discloses a solvent front or sample band sensor.

Schriftman (US 3,491,883), Kaplan et al. (US 4,151,065) and Turre et al. (US 4,415,418) each disclose the use of clear or transparent electrophoresis tray.

Hudson et al. (US 6,173,350) discloses control devices.

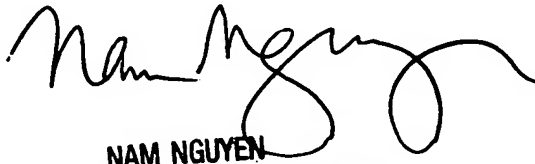
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Surekha Vathyam whose telephone number is 571-272-2682. The examiner can normally be reached on 7:30 AM to 4:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SV  
April 16, 2007

  
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